BEFORE THE
POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

IN THE MATTER OF BOISE CASCADE CORPORATION, Appellant, vs. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	PCHB No. 294 FINAL FINDINGS OF FACT, CONCLUSIONS AND ORDER

This appeal by Boise Cascade Corporation (herein called appellant) came on for hearing at the office of the Board in Lacey, Washington on November 19, 1973. Board members W. A. Gissberg and Mary Ellen McCaffree heard the appeal.

Appellant was represented by its attorneys E. M. Murray and James A. Furber; respondent, State of Washington, Department of Ecology, was represented by Charles W. Lean, Assistant Attorney General; the State of Washington, Department of Revenue, was represented by William D. Dexter, Assistant Attorney General, pursuant to Stipulation and Order entered in

Walla Walla Superior Court Cause No. 62159. The Board having heard the testimony, reviewed the exhibits and considered the arguments of counsel, and the exceptions of appellant and respondent Department of Ecology, now makes and enters the following:

FINDINGS OF FACT

I.

Appellant is a corporation duly authorized to do business in the State of Washington with its principal place of business in this state, as it applies to this appeal, at Wallula, Washington.

II.

Appellant owns and operates a kraft pulp mill on the Columbia River at Wallula, Washington, sixteen miles south of the Tri-City area. The mill manufactures kraft liner board and NSSC corrugating medium, both of which are used extensively for cardboard boxes. The mill operates twenty-four hours a day for 360 days a year.

III.

An integral part of appellant's plant are two Babcock and Wilcock recovery units (sometimes called recovery furnaces or boilers), one of which was constructed in 1959 and the other in 1961. These recovery units are designated as recovery unit one and recovery unit two respectively. These units perform two functions essential for the profitable production of kraft pulp: (1) recovery of chemicals used in pulping of wood chips, and (2) production of heat for steam used in the mill.

IV.

In kraft pulping, wood chips are cooked in digesters in an alkaline

chemical solution composed principally of sodium hydroxide and other sodium and sulphur compounds. Heat and pressure are applied to the digesters and the wood chips are cooked into pulp fibers and liquid lignin and other organic constituents. The pulp fibers are removed for further processing into commercial products. The lignin and pulping chemicals called weak black liquor consist of 15 percent by weight dissolved solids and 85 percent by weight water.

V.

The weak black liquor is concentrated by evaporation to 65 percent solids and fed into the recovery boilers. The boilers burn the lignin and reduce the sodium sulphur compounds to a smelt. The heat produced from the burning is absorbed by water-filled tubes inside the boilers to produce steam. The smelt from the bottom of the boilers is processed and the chemicals are recovered for reuse in the pulp cooking.

VI.

Hot flue gases from boiler Nos. 1 and 2 are used to evaporate strong black liquor to 60 to 65 percent through direct contact with the liquor. During such contact the concentration of odorous sulphur compounds in the boiler flue gases is further increased through the stripping of the chemicals (particularly sulphide ions from the liquor) which also are odorous and are then discharged into the atmosphere.

VII.

Although both boilers have been almost entirely depreciated by the appellant, they have been kept in good condition by continuous maintenance and periodic overhauls. This system of maintenance assures that the boilers will continue to perform their essential functions (other than

emission control) efficiently on an indefinite basis and the boilers have substantially an indefinite life.

VIII.

From a strict technological standpoint, the recovery furnaces are not necessary to the manufacture of pulp. However, if they are not utilized, the chemicals used in the pulp manufacturing process would have to be disposed of in some other fashion and could not be reused. One way, except for effective water pollution laws, would be to discharge the chemicals into the waterways. The recovery of chemicals used in the manufacturing process of kraft pulp results in substantial and necessary economies to appellant. Thus, although its recovery furnaces are not technologically necessary in order for a kraft mill to manufacture pulp, they are necessary, however, to economically do so. Therefore, the recovery boilers are economically necessary in the manufacture of appellant's products.

IX.

Sulphite pulp mills can both economically and technologically operate without the recovery of chemicals, hence without the use of recovery boilers.

X.

Appellant's boilers have a "nameplate" rating as follows:

No. 1 boiler	165 tons per day
No. 2 boiler	225 tons per day

The nameplate rating does not limit the production capacity of the boiler and it is common practice in the pulp industry to operate the boilers in excess of the nameplate capacity. The existing two boilers

have a combined nameplate capacity of 1,170,000 pounds of dry liquor solids per day, an average of 1,750,000 pounds and a peak rate of 1,900,000 pounds. Appellant's existing boilers can and do operate at a capacity even higher than the above "peak rate". The limitations upon production capacity of kraft liner board and NSSC corrogating medium in appellant's plant have been caused in the past not by limitations in capacity of its recovery boilers, but by inefficiencies or "bottlenecks" in other parts of the total manufacturing process. The normal average annual production growth of appellant's mill has been at a rate of about 5 percent. This has been achieved by the elimination of "bottlenecks" in the plant.

XI.

Respondent has adopted limits for gaseous discharge from recovery boilers in the atmosphere. WAC 18-36-030(2) limits the discharge of certain sulphide emissions, referred to as total reduced sulphur or TRS, to two pounds per air-dryed ton of kraft pulp or 70 parts per million (ppm) from each recovery stack. WAC 18-36-030(3) requires that by July, 1975, TRS emissions shall not exceed one-half pound of sulphur per air-dried ton or 17-1/2 ppm from all recovery stacks or such "other limits of TRS that proves to be reasonably obtainable utilizing the latest in design of recovery furnace equipment, controls and procedures". The emissions from appellant's recovery furnaces substantially exceed these requirements.

XII.

After the promulgation of WAC Chapter 18-36, appellant embarked upon a study and evaluation of the means by which respondent's emission

standards could be best met. To achieve compliance, consideration was given to:

(1) Modifying its two existing boilers. However, the present production capacity of the mill would have to be reduced. Without considering the lost profits caused by reduced capacity, the cost of modifying the present boilers was estimated to be 3.2 million dollars. Even then it was questionable as to whether TRS standards could have been sustained over a long period of time;

(2) Keeping one or both of the existing boilers with modifications and operating them at reduced firing rates and the construction of a new boiler to recoup the loss of present production levels and capabilities. The estimated cost of construction of this alternative was 9.2 million dollars. This type of compliance facility and plan has been approved for tax credits in its entirety by respondent in the case of the Weyerhaeuser Company, Everett Kraft Mill. However, appellant chose not to utilize this alternative which would have enabled it to achieve compliance with respondent's regulations.

(3) To enable it to operate within respondent's present emission standards and in anticipation of stricter standards and following recommendation made by its plant manager in late 1971, appellant made the decision to construct an entirely new system which involved the construction of one recovery boiler having a nameplate capacity of 700 tons per

day or 2,100,000 pounds of dry liquor solids per day. The present recovery furnaces, it was then contemplated, would continue to physically exist but would no longer be operated.

XIII.

The new recovery boiler designated No. 3 is of the latest design and works on a low odor "no-contact" concept. Unlike the existing boilers, exhaust gases from the new boiler do not concentrate the strong black liquor by direct contact. Concentration of the strong black liquor to the requisite solid content is effected in a new device called a concentrator. Elimination of the contact evaporators requires the new boiler to be larger than the old boilers to lower the temperature and insure complete combustion of the flue gases, which is necessary to permit proper particulate recovery in the precipitator and to maximize heat recovery.

XIV.

By reason of appellant's decision to install a new recovery furnace, respondent allowed appellant to continue to operate its existing recovery furnaces in excess of the 70 ppm requirements, provided appellant meets the 17-1/2 ppm requirement by March 1, 1975.

XV.

Boiler No. 3 and related system is now under construction and will be operational in July, 1974. Its total 1971 estimated cost was 8.9 million dollars of which 3.2 million dollars was the cost of the purchase of the recovery boiler itself, exclusive of installation cost. It is designed and guaranteed by its manufacturer to emit no more than 5 ppm of TRS so long as it operates at its contemplated capacity of

2,100,000 pounds of dry liquor solids per day. It is not known nor does the evidence reveal how much additional production capacity can be achieved by appellant's new system when operating at a level which will not violate the 17-1/2 ppm TRS standards. Appellant's adopted plan makes it possible to increase the production capacity without the installation of a new boiler because the existing boilers are still in existence. However, the present two boilers in the future cannot be utilized and operated within the emission standards without the addition of extensive pollution control equipment on a sustained basis.

XVI.

The new No. 3 boiler was not designed to increase pulp production above appellant's present capacity and appellant is not installing the boiler to obtain an increase in pulp production over and above the capacity appellant presently has with recovery boiler Nos. 1 and 2. It was designed to maintain the appellant's present capacity and comply with the new TRS emission limits. The primary reason appellant is replacing the existing boiler Nos. 1 and 2 with No. 3 is to meet the 1975 TRS emission limits in what appellant concluded was the best and most economic way to meet those limits.

XVII.

Since the time that appellant's plant manager recommended the new system to the corporate management, a shortage of supply over demand of pulp has arisen in the world-wide market. As a result, he has now recommended to his corporate superiors that the present No. 2 boiler, instead of being "discontinued", as stated in the Notice of Appeal, be put "back on line" in order that appellant can achieve an additional

production capacity of 300 tons per day. To do so appellant would incur an expenditure of two million dollars, of which some portion would be to meet air pollution emission standards.

XVIII.

The capital investment required in 1971 for the new facilities and recovery furnace was estimated to be 8.9 million dollars. At today's cost and with a larger precipitator than originally contemplated, it is estimated the investment will be in excess of 10.5 million dollars.

XIX.

The new boiler and related equipment required to be installed concurrently will provide appellant approximately 557,000 dollars annual operating cost savings over the operating cost of the present two boilers. This sum represents approximately a 5 percent return on appellant's capital cost of the new boiler and related equipment, not taking into account interest cost on the capital investment. The operation of recovery furnace at a rate in excess of its nameplate capacity results in an increase maintenance expense in costs. Appellant will realize additional operating cost savings in an amount unknown at this time from the reduced maintenance cost of the new recovery furnace. However, these annual advantages in operating costs were not the primary reasons appellant decided to install the new boiler and related equipment. It is appellant's policy to invest its capital so as to derive a financial return substantially in excess of this amount.

XX.

On July 15, 1970, appellant timely filed six separate applications for pollution control tax exemption and credit certificates for the new

boiler and related equipment. Three of those applications concerned appellant's installation of its Case No. III proposal (Appellant's Exhibit 8); i.e., the black liquor concentrator, the electrostatic precipitator, and recovery boiler. Complete approval was granted on all applications except the recovery boiler which was partially approved. Such partial approval is the subject of this appeal.

XXI.

The Department of Ecology determined that "basically recovery furnaces are not eligible for certification because they are not operated primarily for pollution control". Nonetheless, effective December 1, 1972, the Department of Revenue issued Pollution Control Certificate No. 653 which approved that portion of the cost of recovery furnace which is attributable to constructing an "oversize" furnace in order to meet respondent's emission standards. Respondent took into account the fact that appellant's present two boilers are operated at an average annual rate of 1,750,000 pounds of dry liquor solids per day and, therefore, a new furnace having at least that average production capability is needed by appellant to sustain its present production; accordingly, in effect, no credit was given for the replacement of this average rate of use. In respondent's view, only the capacity of the new boiler; i.e., 2,100,000 pounds, in excess of the old average rate of use; i.e., 1,750,000 pounds, was for the purpose of reducing and controlling air pollutants. The actual dollar amount of the tax exemption would then equal, respondent determined, the cost difference between those two furnaces, including engineering and overhead cost. The partial approval granted by respondent was conditioned upon appellant not using the excess

furnace capacity for production of pulp (Appellant's Exhibits 13 and 15).

XXII.

Appellant's new recovery furnace No. 3 is a facility within the meaning of RCW 82.34.010 which was designed and is intended to be operated primarily for the control, capture and removal of pollutants, and the facility is suitable, reasonably adequate, and meets the intent and purposes of Chapter 70.94 RCW and WAC 18-36-030. The primary purpose of appellant's new recovery furnace is for the purpose of pollution control in removing air pollutants.

XXIII.

Any Conclusion of Law hereinafter recited which should be deemed a Finding of Fact is hereby adopted as such.

Based upon the foregoing Findings of Fact, the Board makes the following:

CONCLUSIONS OF LAW

I.

Appellant's recovery furnace No. 3 is designed and is intended to be operated primarily for the control, capture and removal of pollutants from the air and is suitable, reasonably adequate and meets the intents and purposes of Chapter 70.94 RCW and WAC 18-36-030. Appellant's recovery furnace No. 3 qualifies for the tax exemption and credit provided for by RCW Chapter 82.34.

II.

To the extent that respondent's regulations (WAC 173-24-030 and 100) deny the certification of appellant's facility based upon the fact that it is a facility which is necessary for the manufacture of products,

said regulations are unlawful because they are outside the framework and policy of RCW Chapter 82.34.

III.

An element necessary to obtain approval of a facility is that it be operated or intended to be operated primarily for the "control . . . of . . . pollutants."[1] That is a continuing requirement. RCW 82.34.100(2) requires the tax certificate to be modified or revoked when the facility "is no longer operated primarily for the purpose of the control . . . of . . . pollution."

The facility will not be operated primarily for that purpose when and if the combined pulp production levels of recovery boiler Nos. 1, 2 and 3 exceed the present levels of production of recovery furnace Nos. 1 and 2. It was therefore legally proper that the effectiveness of the new certificate should be conditioned upon the requirement that appellant's combined production levels from recovery furnace Nos. 1, 2 and 3 should not exceed present production levels of recovery furnace Nos. 1 and 2.

IV.

Any Finding of Fact, which should be deemed a Conclusion of Law is hereby adopted as such.

ORDER

The Department of Ecology shall approve appellant's application for a certificate authorizing tax exemption and credit provided by RCW Chapter 82.34 with respect to recovery furnace No. 3 being installed at appellant's kraft pulp mill at Wallula, Washington. The continued effectiveness of said certificate shall be conditioned upon

the requirement therein that appellant's combined production levels from recovery furnace Nos. 1, 2 and 3 shall not exceed the present production level of recovery furnace Nos. 1 and 2.

DATED this 31st day of May, 1974.

POLLUTION CONTROL HEARINGS BOARD

MARY ELLEN McCAFFREE, Member

W. A. GISSBERG, Member